National Institute of Environmental Health Sciences

Fungi and pollen exposure in the first months of life and risk of early childhood wheezing

Author(s): Harley KG, Macher JM, Lipsett M, Duramad P, Holland NT, Prager SS, Ferber J, Bradman A, Eskenazi B, Tager IB

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Abstract:

BACKGROUND: Many studies have found that the risk of childhood asthma varies by month of birth, but few have examined ambient aeroallergens as an explanatory factor. A study was undertaken to examine whether birth during seasons of elevated ambient fungal spore or pollen concentrations is associated with risk of early wheezing or blood levels of Th1 and Th2 type cells at 24 months of age. METHODS: 514 children were enrolled before birth and followed to 24 months of age. Early wheezing was determined from medical records, and Th1 and Th2 type cells were measured in peripheral blood using flow cytometry. Ambient aeroallergen concentrations were measured throughout the study period and discrete seasons of high spore and pollen concentrations were defined. RESULTS: A seasonal pattern was observed, with birth in autumn to winter (the spore season) associated with increased odds of early wheezing (adjusted odds ratio 3.1; 95% confidence interval 1.3 to 7.4). Increasing mean daily concentrations of basidiospores and ascospores in the first 3 months of life were associated with increased odds of wheeze, as were increasing mean daily concentrations of total and specific pollen types. Levels of Th1 cells at age 24 months were positively associated with mean spore concentrations and negatively associated with mean pollen concentrations in the first 3 months of life. CONCLUSIONS: Children with higher exposure to spores and pollen in the first 3 months of life are at increased risk of early wheezing. This association is independent of other seasonal factors including ambient levels of particulate matter of aerodynamic diameter

Source: http://dx.doi.org/10.1136/thx.2007.090241

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Allergens, Particulate Matter

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

United States

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Other Respiratory Effect

Respiratory Condition (other) : early wheezing

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified